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HIGH-SPEED WORM THREADING IN THE USSR

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High-speed threading of large-size worms (4.5 millimeter module and larger) is done on the DIP-300 screw-cutting lathe with the aid of a special attachment.

The attachment is mounted on the carriage of the machine. It consists of a cutting-tool head with six cutters, a reducing gear, and 2.2 kilowatt electric motor, which are mounted on a common plate. A flange connects the motor with the reducing gear. Movement from the reducing gear to the spindle of the cutting-tool head is transmitted by V-belt drive.

The following conditions of cutting have been established: speed of cutting v = 225 meters per minute; feed per revolution of each cutter s = 0.08-0.15 millimeters; machining is accomplished in one pass. Rotation of the work piece (the worm) is accomplished by the feed movement.

To achieve the required feed in the kinematic chain of the main movement of the DIP-300 machine, a reducing gear is included which lowers the number of machine tool revolutions 24 times. The kinematic chain in this case is a circular feed of the work piece.

For facilitating the process of cutting, three of the six cutters cut the groove and the other three perform the finishing operation. These cutters are installed in the body of the cutting-tool head in alternating order. The cutters are plated with T15K6 hard alloy. The positive rake of the cutters is 4 degrees.

The cutters will last 3 hours when cutting 20Kh steel, under the above-specified conditions of cutting.

High-speed threading of worms increases labor productivity an average of five times.

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